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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,095	11/13/2003	Chatree Sitalasai	025779-003300US	9510

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EXAMINER

PIZIALI, JEFFREY J

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 05/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/714,095	Applicant(s) SITALASAI ET AL.	
	Examiner Jeff Piziali	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☒ Claim(s) 31 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>25 July 2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference characters seemingly not mentioned in the description: "10" (see Figs. 1 & 3), "R7" (see Fig. 7), "R8" (see Fig. 7), and "U9D" (see Fig. 7). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference characters in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicants will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "C2" has been used to designate both the 100pF capacitor connected to the output of inverter U9C and the 0.1 μ F capacitor connected to the input of inverter U9D (see Fig. 7). A corrected drawing sheet in compliance with 37 CFR 1.121(d) is required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if

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only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicants are reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because of undue length. At present, the abstract of the disclosure is approximately 200 words in length. Correction is required. See MPEP § 608.01(b).

5. The disclosure is objected to because of the following informalities:

The 'Background of the Invention' section of the instant application is replete with various reference numerals, characters, and figures which appear to be associated with prior art documents and not with the instantly provided illustrations (e.g. see Page 3, Line 17; Page 4,

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Line 18; Page 5, Line 2, etc. of the Specification). To prevent potential confusion over admitted prior art, the examiner respectfully requests that the applicants expressly distinguish any prior art document reference numerals, characters, and figures from the instantly provided illustrations.

Additionally, Page 24, Line 1 of the Specification should probably be changed from "plan" to "plane."

Appropriate correction is required.

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicants' cooperation is requested in correcting any errors of which applicants may become aware in the specification.

Claim Objections

7. Claim 31 is objected to because of the following informalities: Line 1 should probably be changed from "comprise" to "comprises." Appropriate correction is required.

8. Claim 34 is objected to because of the following informalities: The term "low signal" in Line 2 is a relative term which renders the claim indefinite. The term "low signal" is not defined by the claim, the specification does not expressly provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Specification infers the term "low signal" is *low* relative to an alternate "high signal" originating from the motion sensor (see Page 27, Line 10 - Page 28, Line 11 of the Specification). However, the examiner respectfully requests that the claim language be adjusted

to more clearly recite to what the claimed "low signal" is being compared. Appropriate correction is required.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicants are advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-25, 28, 31, 32, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss (US 6,492,975 B1) in view of Chou (US 6,559,396 B1).

Regarding claim 1, Weiss discloses a system [Fig. 2; 20] for a device [Fig. 4; 1] comprising: a motion sensor [i.e. a tilt switch -- see particularly Column 4, Line 5] mounted inside said device, said motion sensor having a motion signal output [i.e. tilt switch output, either electrically switched-on or switched-off, depending upon tilted mouse position]; and a detection

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circuit [Fig. 6; 11] (see Column 5, Lines 43-58) connected to the motion signal output and having a trigger signal output [i.e. a mouse disable/enable signal] (see Column 4, Lines 1-26).

Weiss only mentions in passing using a tilt switch, and does not expressly disclose structural/mounting details of the tilt switch.

However, Chou expressly discloses a system for a device [Fig. 7] having a printed circuit board [Fig. 7; 60] inside it, comprising: a motion sensor [Fig. 7; 30 & 40 working in electrical/gravitational conjunction together] mounted on said printed circuit board inside said device (see Column 2, Line 66 - Column 3, Line 22), said motion sensor having a motion signal output [i.e. either electrically switched-on or switched-off, depending upon conductive ball 30 position] (see Column 2, Lines 1-33).

Weiss and Chou are analogous art, because they are from the shared field of tilt switch sensing circuitry. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to substitute Weiss' generic tilt switch [Weiss: Column 4, Line 5] with Chou's tilt switch [Chou: Fig. 7; 100], so as to provide a tilt switch which can maintain an electrical connection even when jerked by a slight tilting force, and thereby prevent undesired electrical connection interruptions [Chou: Column 1, Lines 32-42].

Regarding claim 2, Weiss discloses said system is a wake-up system (see Column 3, Line 62 - Column 4, Line 26 -- for either enabling/waking-up or disabling mouse operations).

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Regarding claim 3, Weiss discloses said trigger signal output is a wake-up signal output (see Column 3, Line 62 - Column 4, Line 26 -- for either enabling/waking-up or disabling mouse operations).

Regarding claim 4, Weiss discloses said device is an input device (see Column 4, Lines 12-43).

Regarding claim 5, Chou discloses said motion sensor is a mechanical motion sensor (see Column 1, Lines 6-11).

Regarding claim 6, Chou discloses said motion sensor is a tilt sensor (see Column 1, Lines 6-11).

Regarding claim 7, Weiss discloses said input device is a mouse (see Column 4, Lines 12-43).

Regarding claim 8, Weiss discloses said mouse is an optical mouse (see Column 4, Lines 12-26).

Regarding claim 9, Weiss discloses said input device is wireless (see Column 4, Line 32).

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Regarding claim 10, Chou discloses said tilt sensor comprises an electrical switch comprised of: a ball contact [Fig. 7; 30]; and at least one stationary contact [Fig. 7; 40] on said printed circuit board (see Column 2, Line 66 - Column 3, Line 22).

Regarding claim 11, Chou discloses said stationary contact is printed on said printed circuit board (see Column 3, Lines 4-22).

Regarding claim 12, Chou discloses said stationary contact has a hole [Fig. 7; 43] in the center (see Column 3, Lines 39-60).

Regarding claim 13, Chou discloses the stationary contact has an inclined surface [Fig. 7; 421] toward its center (see Column 3, Lines 61-67).

Regarding claim 14, Chou discloses the sensitivity of said tilt sensor is adjustable during manufacture (see Column 2, Lines 17-33 -- wherein Chou's tilt switch is adjusted during manufacture to be less sensitive than a conventional tilt switch).

Regarding claim 15, Chou discloses the sensitivity of said tilt sensor is adjusted by the size of the hole (see Column 2, Lines 1-33 -- wherein hole size inherently impacts tilt switch sensitivity).

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Regarding claim 16, Chou discloses the sensitivity of said tilt sensor is adjustable by the size of the ball contact (see Column 2, Lines 1-33 -- wherein ball size inherently impacts tilt switch sensitivity).

Regarding claim 17, Chou discloses the sensitivity of said tilt sensor is adjustable by the weight of the ball contact (see Column 2, Lines 1-33 -- wherein ball weight inherently impacts tilt switch sensitivity).

Regarding claim 18, Chou discloses the sensitivity of said tilt sensor is adjustable by the conductivity of the ball contact (see Column 2, Lines 1-33 -- wherein ball conductivity inherently impacts tilt switch sensitivity).

Regarding claim 19, Chou discloses said tilt sensor comprises plural [i.e. first and second] stationary contacts [Fig. 7; 40] (see Column 3, Lines 1-3).

Regarding claim 20, Chou discloses the plural stationary contacts are arranged as pieces of a pie (see Fig. 6).

Regarding claim 21, Chou discloses there are 2 [i.e. first and second] stationary contacts [Fig. 7; 40] (see Column 3, Lines 1-3).

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Regarding claim 22, Chou discloses there are 4 stationary contacts [Fig. 5; 41] (see Column 3, Lines 32-38).

Regarding claim 23, Chou discloses there are 6 stationary contacts [Fig. 5; 41 & 42] (see Column 3, Lines 32-38).

Regarding claim 24, Chou discloses there are 8 stationary contacts [Fig. 5; 40, 41 & 42] (see Column 3, Lines 32-38).

Regarding claim 25, Chou discloses said ball contact is a conductive ball (see Column 1, Lines 6-11).

Regarding claim 28, Chou discloses said motion sensor further includes a housing and said housing [Fig. 7; 20] is sealed (see Column 4, Lines 12-15).

Regarding claim 31, Weiss discloses said motion sensor comprise an electrical switch and said detection circuit detects a change in state of whether said switch is opened or closed (see Column 4, Lines 1-26).

Regarding claim 32, Weiss discloses said detection circuit comprises: a motion detector [Fig. 6; 11] that determines if there is a change in the opened or closed state of a motion sensor switch [i.e. tilt switch]; and a signal processing circuit having a latch circuit [i.e. wherein switch

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11 inherently latches whether or not the mouse is disabled/titled] that creates a signal of a particular level for a period of time to generate a wake-up signal [i.e. a mouse disable/enable signal] (see Column 5, Lines 43-58).

Regarding claim 35, this claim is rejected by the reasoning applied in rejecting claims 1-4.

Regarding claim 36, this claim is rejected by the reasoning applied in rejecting claims 1-4.

Regarding claim 37, Weiss discloses said input device further comprises a microprocessor [i.e. the computer] and said microprocessor wakes-up the input device in response to said wake-up signal from said detection circuit (see Column 6, Lines 3-6).

12. Claims 26, 27, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss (US 6,492,975 B1) and Chou (US 6,559,396 B1) as applied respectively to claims 10 and 32 above, and further in view of Davis (US 4,196,429 A).

Regarding claim 26, neither Chou nor Weiss expressly discloses a tilt switch having a gold-plated ball contact.

However, Davis does disclose a tilt switch having a gold-plated ball contact [Fig. 2; 46] (see Column 4, Lines 9-14). Chou, Weiss, and Davis are all analogous art, because they are from the shared field of tilt/motion sensing circuitry. Therefore, it would have been obvious to one

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having ordinary skill in the art at the time of invention to substitute Weiss' generic tilt switch [Weiss: Column 4, Line 5] with Chou's tilt switch [Chou: Fig. 7; 100], while also replacing Chou's copper/steel ball [Chou: Column 3, Lines 23-25] with Davis' gold plated contacts [Davis: Column 3, Lines 64 and Column 4, Line 11] so as to provide a tilt switch which can maintain an electrical connection even when jerked by a slight tilting force, and thereby prevent undesired electrical connection interruptions [Chou: Column 1, Lines 32-42], while also improving electrical conductivity and minimizing oxidation [Davis: Column 4, Line 12].

Regarding claim 27, neither Chou nor Weiss expressly discloses a tilt switch having a gold-plated stationary contact. However, Davis does disclose a tilt switch having gold-plated stationary contacts [Fig. 2; 32 & 36] (see Column 3, Lines 63-68).

Regarding claim 33, neither Chou nor Weiss expressly discloses a motion detector comprising two invertors for amplifying and converting a motion signal pulse from a motion sensor. However, Davis does disclose a motion detector comprising two inverters [Fig. 10; 98 & 108] for amplifying and converting a motion signal pulse [Fig. 10; at 7] from a motion sensor [Fig. 10; 70] (see Column 5, Lines 18-64).

Therefore, it would have been obvious to use Davis' hex inverter buffer amplifier circuit as Weiss' motion detector, so as to provide an inexpensive and small-sized motion detector [Davis: Column 5, Lines 45-47].

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Regarding claim 34, neither Chou nor Weiss expressly discloses a motion detector comprising a single inverter that can detect a low signal from the motion sensor. However, Davis does disclose a motion detector comprising a single inverter [Fig. 10; 96] that can detect a low signal from the motion sensor [Fig. 10; 70] (see Column 5, Lines 18-64).

13. Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss (US 6,492,975 B1) and Chou (US 6,559,396 B1) as applied to claim 28 above, and further in view of Kato et al (US 5,837,951 A).

Regarding claim 29, neither Chou nor Weiss expressly discloses a tilt switch housing being sealed with an O-ring.

However, Kato does disclose a tilt switch housing being sealed with an O-ring [Fig. 38; 261C] (see Column 33, Lines 47-52). Chou, Weiss, and Kato are all analogous art, because they are from the shared field of tilt/motion sensing circuitry. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to substitute Weiss' generic tilt switch [Weiss: Column 4, Line 5] with Chou's tilt switch [Chou: Fig. 7; 100], while also replacing Chou's seals [Chou: Column 4, Lines 12-15] with Kato's seals [Kato: Column 30, Lines 37-40 and Column 33, Lines 47-52] so as to provide a tilt switch which can maintain an electrical connection even when jerked by a slight tilting force, and thereby prevent undesired electrical connection interruptions [Chou: Column 1, Lines 32-42], while also securely sealing the resulting tilt switch without need for welding work [Kato: Column 30, Lines 24-26].

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Regarding claim 30, neither Chou nor Weiss expressly discloses a tilt switch housing being sealed with an adhesive.

However, Kato does disclose a tilt switch housing being sealed with an adhesive (see Fig. 35; Column 30, Lines 37-40).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. Gates et al (US 2005/0078087 A1), Barney (US 2004/0204240 A1), Krumm et al (US 2003/0206115 A1), Chou (US 2003/0057361 A1), Davidson et al (US 2003/0001822 A1), Chou (US 6,518,523 B1), Roest (US 6,148,669 A), Chou (US 6,005,205 A), Kolb et al (US 5,672,856 A), Kato et al (US 5,610,338 A), Blair (US 5,136,127 A), Bogut et al (US 5,006,676 A), Kelly et al (US 4,866,850 A), Canevari (US 4,628,160 A), Hill (US 4,513,183 A), Moskin et al (US 4,425,488 A), and Bitko (US 4,135,067 A) are cited to further evidence the state of the art pertaining to waking up input devices.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



27 April 2006